Docket 90-314

ORIGINAL

FEDERAL COMMUNICATIONS COMMISSION

PRESENTS EN BANC MEETING

ON PCS ISSUES

MONDAY, APRIL 11, 1994

Page 89 is
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PERSONAL COMMUNICATIONS INDUSTRY ASSOCIATION

MR. STROUP: Thank you, Dr. Pepper, Chairman Hundt, Members of the Task Force.

It is my pleasure to represent the Personal Communications Industry Association today and present our market demand forecasts for PCS.

PCS is a broad range of both existing and new services. Because of the significant cross-elasticity of demand between various members of this family, all must be considered.

For the purpose of our study, PCIA solicited information from representatives of the industry who are expected to build the networks. It describes the potential size of the market, assuming licensing in 1994.

Statistical information was calculated using a delphi method of removing the high and low responses and averaging the remainder.

My first chart summarizes the findings.

New PCS, while the last entrant will grow sharply, 8-1/2 million subscriptions are predicted at the end of the first three years of service deployment. That number will grow by more than 250 percent between 1998 and

the year 2003, to 31 million subscriptions.

At the same time, demand for cellular service will continue to grow dramatically, a 154 percent increase between 1993 and 1998, reaching 52 million subscriptions in the year 2003.

Cellular will continue to hold by far the dominant share of the mobile voice market.

ESMR deployment, which will occur before new PCS starts to become operational will experience steep initial growth, increasing by nearly 250 percent between 1993 and 1998. Growth will slow but still be substantial in the out years.

The graphic on my next chart makes the projected growth of the various members of the PCS family a little clearer. The only conclusions to draw is that the introduction of new services will greatly expand the demand for all forms of PCS.

In addition, there is historical evidence that the introduction of new spectrum and new service providers in the mobile marketplace will have this effect.

As noted in my next chart, in 1982, the Commission doubled the amount of spectrum allocated to

paging services. The result was not bankruptcy for established carriers but, on the contrary, it resulted in substantially accelerated growth in subscriber numbers.

Also, significantly, prices dropped dramatically during the same time period, a 50 percent reduction in consumer pricing between 1987 and 1992 alone.

I'm glad to hear your comments regarding the delay and how this Panel is not intended to delay but actually expedite licensing, because there is historical evidence of the cost of regulatory delay.

Twelve years ago the Commission experienced significant delay in licensing cellular telephone service. A 1991 study estimated the cost to the U.S. economy of that delay at $86 billion. The very strong and healthy market projections for new PCS documented and PCIA's market demand study will not be realized if these new services face similar regulatory delay.

First, delayed deployment of new PCS will diminish demand for emerging services. A study conducted by DSS Research quantifies this effect.

As noted on my next chart, according to that study, a delay of just one year, licensing in 1995 rather

than in 1994 would result in a 15 percent reduction in new PCS's market penetration. A delay of just two years would reduce the total market penetration for new PCS by one-third of what was predicted with 1994 licensing.

It is significant to point out that DSS Research's study indicates that the total market for PCS, both existing and emerging forms, will be diminished if new PCS services are delayed.

As the chart makes clear, the loss of new PCS penetration as a result of delay are greater than the gains realized by cellular and ESMR.

This research is consistent with PCIA's original market demand forecast issued in 1992, which showed there would be 14 million fewer new PCS subscribers if licensing were conducted in 1997 instead of 1994. This reflects a 24 percent reduction in our original new PCS growth estimates.

Delay in licensing new PCS also translates into less effective competitors once new services are introduced.

Cellular carriers are adding new customers to their networks at the rate of 14,000 per day. ESMR is

also projected to achieve rapid market penetration as these new networks come on line in the coming months. Delay in licensing new PCS will result in substantially weaker competitors being forced to challenge more formidable and well-established incumbents.

Delayed deployment also may mean the death toll for many potential new PCS entrants. Each day of delay in licensing means a delay in any return on the significant investment that new PCS hopefuls have already made in these new services.

Any reduction in the size of the new PCS industry also translates into proportionate reductions in the benefits these new services are expected to bring to the American economy.

That means a reduction in revenues generated, fewer new high technology jobs, and a loss in the productivity gains, which new PCS promises.

If I may move to my conclusion -- I'm not sure that the lights are working.

The increasing uncertainty over the form of the broad band PCS rules is a cloud growing over the industry. The delay, or perception of delay, in concluding the PCS

proceedings is starting to undermine investor confidence in the industry and jeopardizes the ability of the industry to raise the capital necessary to acquire licenses at auction and build their infrastructure.

The wireless telecommunications industry knows it is on the brink of the next revolution in communications. We are now at the crucial point in determining whether it will be launched quickly and successfully or whether delays, for reasons however well intentioned, will hamper its start and diminish the promised benefits to consumers, the economy, and the nation's taxpayers.

If new PCS growth is to meet the potential shown on my last chart, we cannot afford continued licensing delay.

Today's hearing is an excellent opportunity to send a clear message to the industry and to Wall Street that uncertainty will be removed expeditiously.

Thank you.

MR. HALLER: Thank you, Tom.

Mr. Twyber.

DAVE TWYBER

WIRELESS SYSTEMS GROUP

NORTHERN TELECOM

MR. TWYBER: Good morning, Mr. Chairman, Commissioners, Members of the PCS Task Force, and Dr. Pepper.

I'm Dave Twyber, President of Northern Telecom's Global Wireless Systems Organization, headquartered in Richardson, Texas.

We believe strongly that there will be significant demand for PCS by consumers and businesses alike and, as a result, we are fully committed to the growth and development of the PCS industry.

Northern Telecom is so convinced that PCS will fulfill unsatisfied consumer and business needs, that our Wireless Systems organization has already invested several hundred million dollars in U.S. research and development and employs over 1,000 people in PCS and wireless activities in the United States.

Our Wireless organization is expected to at least double in the next two years, and we have plans to began manufacturing PCS equipment in North Carolina and in California as soon as the Commission's rules are

finalized.

This is a working production PCS handset, operating at 1900 megahertz to a base station two blocks from here. Dr. Stanley joined us a couple of weeks ago to make real PCS calls under the experimental license that MCI and we are using to demonstrate this technology. I just use this as an example that the technology is here, the need is here, as Mr. Stroup pointed out, and we are ready to start with this new industry.

We've derived our PCS demand projections from primary research, from market trials, and from ongoing dialogue with potential licensees and then customers.

We've added our global experience with wired and wireless communication solutions and independent industry forecasts like those that will be presented by others on this panel.

Our studies have shown that there is incredible demand for mobility. Currently, over 16 million people use cellular phones for vehicular and public mobility, and almost 50 percent of all homes have the convenience of cordless phones.

Yet, our market research shows that over 50

percent of businesses which are utilizing existing products such as analog, cordless, SMR, paging, and cellular, to meet mobility needs in the office, have varying degrees of dissatisfaction based on functionality or price.

We envision PCS initially offering high quality voice and data services, then migrating towards higher quality multimedia communications and advanced intelligent network services for all market segments.

Northern Telecom anticipates significant demand in all PCS markets, enabled in the report, and order for all frequency blocks, in both the 1850, 1990, and 2130 to 2200 megahertz bands. We urge the Commission to retain the current channelization plan.

To address the varying applications, Northern Telecom will introduce products for licensed PCS in all bands and for unlicensed PCS.

We believe that there are significant opportunities for both licensed and unlicensed PCS. These services are complementary, yet address different applications.

The licensed band will generally be more

conducive and cost-effective for public service offerings requiring wide area seamless coverage in a geographic area. This is due to the power differences between the two offerings.

Licensed PCS will provide both in-building and wide area mobility.

Northern Telecom believes licensed PCS applications in the 10 megahertz channels will take the form of innovative, low-power PCS services serving niche market segments.

Northern Telecom believes the Commission can significantly impact the maximization of demand and utilization of the very important capabilities PCS will provide to consumers by focusing and taking action in the following areas.

First, rule on the PCS reconsideration issue as expeditiously.

Second: Increase base station power limits for licensed PCS.

Third: Retain the current unlicensed PCS allocation in the likely loaded spectrum.

Fourth: Adopt a complete win form etiquette for

unlicensed PCS.

Fifth: Allow the industry to adopt standards for PCS where they are appropriate; and,

Sixth: Eliminate the current build-out requirements for licensed PCS in the 10 megahertz channels.

We have been an active participant in this PCS proceeding from its inception to the present, and we will continue to assist the Task Force and Commission in this important endeavor.

DR. PEPPER: Thank you very much.

Mr. Kerr.

DAVID KERR

BIS STRATEGIC DECISIONS

MR. KERR: Thank you, Mr. Chairman, Commissioners, Members of the Task Force.

It is a pleasure to be here this morning to contribute to the development of the emerging PCS industry.

My name is David Kerr. I'm a senior industry analyst with BIS Strategic Decisions.

BIS has been involved in tracking mobile and

wireless communications, technologies, regulatory environment, and the market environment for over 10 years, primarily through a range of syndicated information services serving North America, Europe, and Asia-Pacific.

In the PCS market, our earliest analysis and demand studies date back to 1988, from PCN in the U.K. Our demand forecasts for the U.S. have been building over the last four or five years. Our studies have combined qualitative research with end-user business and consumer segments, focus group studies, end-user case studies.

Those have been supplemented by quantitative research, primarily in the form of telephone interview programs over the last four or five years.

The final element that feeds into our demand studies is trying to bring some realities to the demand, based on our continuing discussions with potential service providers, equipment vendors, and infrastructure suppliers.

As we see the market today, PCS does, indeed, represent a tremendous opportunity and holds forth the vision of a rich and diverse range of products and

services to serve the American public. This vision, of course, is best represented by the anywhere, anytime, to anything vision.

However, in the short-term, there's a considerable growth emerging between that vision and the realities of first generation PCS.

As we see it, PCS will reach an installed base of 17 million subscribers after 10 years of operation, generating annual service revenues of approximately $6 billion.

While this represents a strong PCS market, it does, in our opinion, represent an underachievement relative to its total potential. There are many reasons for this.

Certainly, one of them in our opinion, is the fragment of market structure that is envisaged for PCS, one in which inevitably the larger allocation, the MTA licenses, will overshadow BTA licenses and the confusion created in the marketplace by the multiplicity of licenses, added by the fact that we will have different standards -- TDMA, CDMA, standards for PCS -- create a situation where it may indeed be economically unfeasible

to serve the consumer market, particularly in the smaller allocations, the 10 megahertz allocations.

As we see it, first generation PCS will be dominated by the winners of the MTA licenses. Given the factors that I just mentioned, it would appear that the most economical segments to serve will be the business-wide area segment, typically classified as mobile professional, rather than trying to serve a mass market with revenue expectations, monthly revenue expectations of $25 to $30.

What we envisage in the current format would be large players, primarily the regional Bell operating companies and the Inter-Exchange carriers, dominating the MTA license awards. The cellular mobile companies, inevitably, will win the 10 megahertz allocations. With extreme difficulty, in our opinion, for the small minorities and designated entities in achieving funding.

Given potentially seven licenses, it would be very difficult for them:

(A) To achieve funding;

(B) To meet the build-out requirements.

So, in this situation, first generation PCS is

likely to focus on serving mobile professionals with feature-rich integrated voice and data services, with consumer market, mass market demand being delayed for several years.

Despite these factors, with 17 million subscribers projected for year 10, PCS, those remain an attractive industry. However, we believe that that level of demand is being inhibited given the current environment, and a more rationale approach, creating two or three strong competitors would increase the overall level of wireless adoption in the U.S.

Essentially, as we see it, PCS will capture approximately 25 percent of the wireless industry revenue by year 10, which is a good performance but understates the potential that we see in this market.

Thank you.

MR. HALLER: Thank you.

Mr. Lowenstein.

MARK LOWENSTEIN

DIRECTOR, WIRELESS MOBILE COMMUNICATIONS

YANKEE GROUP

MR. LOWENSTEIN: Good morning. Thank you, Mr.

Chairman, Commissioner, Members of the Task Force, and everybody else who is in overflow rooms and in this room listening to these proceedings.

I'm Mark Lowenstein. I run the Yankee Group's Wireless and Mobile Communications Research Group. We're based in Boston.

We actually define PCS very broadly and try not to segment PCS from the broad base of other wireless and mobile communications services perhaps as intricately as some of the others in the industry.

We see PCS as a term encompassing a broad variety of wireless and mobile technologies, including cellular, paging, ESMR, mobile data; not really wireless LAN, actually, but mainly lower speed mobile data, at least in the next 10-year time frame, and office wireless systems, such as wireless PBX and Centrex, and also satellite-based systems.

Our view is that it's important not to limit the definition of PCS to the newly-licensed spectrum but rather to recognize that this extra band width will allow a broader range of competitive wireless services to be offered by both incumbent service providers, such as

cellular providers and paging providers today, as well as new market entrants.

It is also important to recognize, however, how PCS might be different. In order for it to be successful, we see that it will have to offer several elements of kind of substitutive or complementary capabilities, which we basically refer to as value-added over today's suite of wireless services that are available.

So, for example, we'll have to have better localized or, let's say, microcellular type coverage in the voice arena, and building coverage, and better coverage in specific locations, whether they're sports stadiums, airports, shopping malls, et cetera.

In the United States, compared to many other parts of the world where I have travelled and seen cellular, for example, we don't have very good in-building coverage of cellular.

We also see that some elements of PCS are based on portable handsets more than the vehicular type of service, for more walk-around/neighborhood type of capability than we see today.

The PCS network will have to be inherently

intelligent, featuring sophisticated levels of communication between both the wired and the wire line and the land line network. That will be an important element of PCS.

We'll have to have both voice and data capabilities on PCS, and also rates between today's prevailing land line prices for regular phone calls and cellular prices. Our research shows that consumers and businesses are willing to pay a premium for mobility, but the premium they pay for mobility, for instance, on cellular today is too great to attract enterprise-wide cellular solutions as well as a broad mass market of consumers into a mobile service.

Pricing plans will have to be flexible, so we have increasing pricing, depending on levels of mobility. The further you are away from a base station, for example, there will have to be incremental levels of pricing, given incremental levels of mobility.

In terms of how we're forecasting the market, our demand is based on several survey mechanisms that we use. In addition to our ongoing discussions with industry leaders and primary research that we're doing in that

arena, we have the 1993 Mobile Professional Survey that we conducted of over 2,000 individuals of both business and personal use of wireless technologies and interest in wireless technologies, as well as a 10-year-old market segmentation scheme that we've developed, called the technologically advanced family.

Some of the key issues that came up from the survey:

First of all, with wireless technology, it's very important to recognize how wireless, whether it's cellular, paging, or portable computers, mix individual and business use of that technology more than many other technology areas or other types of consumer electronics.

Also, that security was cited by cellular users that we talked to as the most important reason for purchasing a cellular phone, and that an increasing percentage of cellular bills are paid by individuals rather than employers, which is an important shift from when cellular first began about 10 years ago.

We also asked noncellular users what it would take for them to purchase a cellular -- whether they were planning to purchase a cellular phone over the next year.

Of the total nonusers, 13 percent are considering a purchase, when 2 percent are definitely planning.

But if you're looking at more specific segments of the market, mobile individuals, people who travel away from their primarily workplace a fair bit of the time, 35 percent of them are at least considering a cellular phone purchase in the next year.

Portable PC users, about 30 percent of them are considering a cellular phone purchase over the next year.

There's still significant pent-up demand for mobile services that aren't being met right now.

Factors driving PCS: The most frequently experienced problem amongst cellular users is being out of coverage range; 46 percent experience it at least occasionally.

Thirty-one percent of noncellular users site service costs -- not handset cost but service cost -- as the primary reason they haven't purchased cellular phones.

Our market forecast for PCS at the present time is that there will be 25 million PCS subscribers by 1998

and falling into the following segments:

There will be cellular PC end-subscribers which we see as users on the existing cellular spectrum, but using a PCS type service, such as the Bell Atlantic contact line for service, for example, we're defining as a PCS service.

Other elements of PCS will include narrow band PCS. We see 8 million subscribers of narrow band PCS.

Enhanced cordless telephony, which we see as the basic cordless phones, with enhanced coverage range beyond the base station that we see right now, that will be a significant element of PCS and we'll actually overlap with some of the newly-licensed 2 gigahertz type services that we'll see introduced.

Newly licensed: We see about 2.5 million PCS subscribers in the time frame, and the other two principal segments, each of about 2 to 2.5 million in the 1998 time frame, are PCS mobile data from portable mobile computing devices, and something that we call PDA messaging, and I'll be happy to explore those segments in more detail in the questions.

DR. PEPPER: Thank you very much.

Mr. Trampush.

DAN TRAMPUSH

NATIONAL DIRECTOR OF TELECOM CONSULTING

ERNST & YOUNG

MR. TRAMPUSH: Mr. Chairman, Commissioner, and Members of the Task Force, my name if Dan Trampush with Ernst & Young.

Thank you for inviting me to comment on PCS demand in rural areas of the United States. My comments are being made on behalf of the Rural Telephone Coalition, which consists of the National Rural Telecom Association, the National Telephone Cooperative Association, and the Organization for the Advancement and Protection of Small Telephone Companies, referred to as OPASCO.

My purpose will be to discuss the differences between the nationwide studies of PCS demand and the work we've done on PCS demand in rural areas. I think there are some important observations about rural PCS demand that have implications for the Commission's PCS policies.

First: In the context of PCS and communications, generally, the critical characteristic of

rural areas is that there are relatively few people pre-iterative geography. That is, for the purpose of studying demand for communication services, rural means low population density. Rural is not a demographic definition, although some people think of rural incorrectly in demographic terms, such as income level, educational attainment, and employment type.

Second: People in rural areas tend to use communication services at least as intensively as people in urban areas. Communication services are at least a partial solution to the relative isolation of rural areas. We see this consistently in studies for long distance calling in urban and rural areas.

Also, we see robust demand for enhanced services and feature in rural areas.

Third: Given similar types of PCS services and PCS prices, the probability of subscription to PCS should be no lower in rural than in urban areas. That is, we discern no difference in the intensity of demand for PCS among potential customers in urban and rural areas.

The demand problem in rural areas is a problem of density, fewer potential customers per square mile,

rather than the probability of subscription or amount of usage per customer which are similar to urban areas.

Fourth: These observations lead to several implications for PCS demand and rural areas.

First, extended range cordless phones will be in high demand in rural areas. A 200-foot range may be fine in an urban apartment but not on a several hundred acre ranch or farm.

Also, the greater distances of travel in rural areas will require that PCS provide higher-speed mobility than in dense urban areas where there's more foot traffic and congestion.

Also, there are, of course, fewer potential customers per square mile than in urban areas, and these customers are not evenly distributed. Undoubtedly, there are concentrated pockets of PCS demand in rural areas defined by geography and terrain. Isolated pockets PCS demand may be the dominant pattern in mountainous or forested areas.

These demand site implications lead me to make a few observations about how best to serve this rural PCS demand.